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EXAMINER
SELLERS, DANIEL R

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/801,922	FAY ET AL.
	Examiner	Art Unit	
	Daniel R. Sellers	2644	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-69* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-69* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>07 March 2001</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>10/07/02</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4)

because reference character "826" has been used to designate both the "Data Media

Interfaces" and the "Operating System". Corrected drawing sheets in compliance with

37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the

application. Any amended replacement drawing sheet should include all of the figures

appearing on the immediate prior version of the sheet, even if only one figure is being

amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the

page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing

figures. If the changes are not accepted by the examiner, the applicant will be notified

and informed of any required corrective action in the next Office action. The objection to

the drawings will not be held in abeyance.

Claim Objections

2.   Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is

required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. The claim reiterates the

method of claim 1.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1-9, 11-20, 22-24, 26-31, 33-44, 46, 47, 49, and 52-58 are rejected under

35 U.S.C. 102(b) as being clearly anticipated by Tamura, U.S. Patent 5,942,707.

5.   Regarding claim 1, see Tamura,

A method, comprising:
receiving audio content from one or more sources; (Col. 6, lines 13-17).
providing an audio content component for each source of audio content, each audio content component generating event instructions from the received audio content; (Col. 4, lines 5-7).
processing the event instructions to produce audio instructions; (Col. 4, lines 9-12).
providing one or more audio rendition managers, each audio rendition manager corresponding to an audio rendition; and (Col. 4, lines 46-48).
routing the audio instructions to the one or more audio rendition managers, wherein the audio rendition managers process the audio instructions to render the corresponding audio renditions. (Col. 4, lines 50-52).

Tamura teaches a method of generating audio in the above manner, wherein Tamura

uses the phrase "sound source" to designate the audio rendition component. The

sound source is a piece of hardware or software, which generates audio given the audio

instructions (Col. 6, lines 47-49).

6.   Regarding claim 2, the further limitation of claim 1, see Tamura,

... wherein each audio content component is a component object having an interface that is callable by a software component, the software component directing said generating the event instructions. (Col. 1, lines 26-31).

Tamura teaches that the hardware and software implementations are analogous.

7.   Regarding claims 3 and 4, see the above rejections of claim 2. Tamura teaches

the audio rendition manager (Col. 4, lines 46-52).

8.   Regarding claim 5, the further limitation of claim 1, see Tamura,

... further comprising providing a performance manager that performs said providing an audio content component for each source of audio content, and performs said providing the one or more audio rendition managers. (Col. 19, lines 61-64 and Col. 6, lines 28-32).

Tamura teaches the use of software to instantiate a plurality of audio rendition

managers.

9.   Regarding claim 6, the further limitation of claim 1, see the above rejection of

claims 5 and 2. Tamura teaches that hardware and software, which accomplish the

same task, are analogous.

10.   Regarding claim 7, the further limitation of claim 1, see the above rejection of

claim 1. Tamura teaches a system that performs all the steps of claim 1, and Tamura

also states that the task can be performed using either software or hardware.

11.   Regarding claim 8, the further limitation of claim 1, see the above rejection of

claim 1. Tamura teaches a system that performs all the steps of claim 1, and Tamura

provides an audio content for the source of audio.

12.   Regarding claim 9, the further limitation of claim 1, see the above rejection of

claim 1. Tamura provides a performance manager, which performs the steps as shown

in claim 1.

13.   Regarding claim 11, the further limitation of claim 1, see Tamura,

... wherein the audio content includes MIDI data. (Col. 6, lines 25-28).

Tamura teaches audio content, which is MIDI data.

14.   Regarding claims 12 and 13, the further limitations of claim 1, see Tamura

... wherein each audio content component has one or more event instruction components that perform said generating the event instructions. AND
... wherein each audio content component has one or more event instruction components that perform said generating the event instructions, each event instruction component corresponding to part of the received audio content. (Col. 4, lines 5-7)

Tamura teaches an audio content component that inherently has instruction

components, since it generates the event instructions and writes them to a memory

location.

15.   Regarding claim 14, the further limitation of claim 1, see Tamura

... further comprising each audio content component generating event instructions and routing the event instructions to the one or more audio rendition managers before said processing the event instructions. (Col. 4, lines 9-12).

Tamura teaches that the event instructions are placed in a second memory location.

The audio rendition manager uses this information before processing.

16.   Regarding claim 15, the further limitation of claim 1, see the above rejection of

claim 1. Tamura teaches these features.

17.   Regarding claims 16 and 17, the further limitations of claim 1, see Tamura,

... wherein the one or more audio rendition managers receive audio instructions originating as event instructions from one or more of the audio content components. AND
... wherein one audio rendition manager receives audio instructions originating as event instructions from one or more of the audio content components. (Col. 4, lines 18-22).

Tamura teaches the generation of the audio instructions from the event instructions, and

teaches the use of the audio instructions in the audio rendition manager.

18.   Regarding claim 18, the further limitation of claim 1, see Tamura,

... wherein said providing an audio rendition manager comprises providing a synthesizer component, the method further comprising processing the audio instructions with the synthesizer component to render the corresponding audio rendition. (Col. 6, lines 47-51).

Tamura teaches that the audio rendition manager can be a hardware component with a

DSP chip. A DSP is a synthesizer component, and Tamura teaches that the DSP

performs the audio rendition given the proper audio instructions.

19.   Regarding claim 19, the further limitation of claim 1, see the above rejection of

claim 18, and see Tamura,

... wherein said providing an audio rendition manager comprises providing a synthesizer component and audio wave data consumers, the method further comprising processing the audio instructions with the synthesizer component to generate audio wave data, and routing the audio wave data to the audio wave data consumers. (Col. 4, lines 22-23).

Tamura teaches the use of a DSP chip, which processes the audio instructions. Then

the output of this audio rendition manager is sent to a memory location.

20.   Regarding claim 20, the further limitation of claim 1, see the above rejection of

claim 19, and see Tamura,

... wherein said providing an audio rendition manager comprises:
providing a synthesizer component; providing audio wave data consumers;
defining logical buses that each correspond to one of the audio wave data consumers; (Col. 8, lines 43-48).
the method further comprising: processing the audio instructions with the synthesizer component to generate multiple streams of audio wave data; (Col. 4, lines 46-47).
assigning each of the multiple streams of audio wave data to one or more of the logical buses; and routing audio wave data streams assigned to a particular logical bus to the audio wave data consumer corresponding to said particular logical bus. (Col. 4, lines 22-23).

Tamura teaches the use of a synthesizer component, as shown above in the rejection of

claim 19.

21.   Regarding claim 22, the further limitation of claim 1, see Tamura,

One or more computer-readable media comprising computer-executable instructions that, when executed, direct a computing system to perform the method of claim 1. (Col. 6, lines 28-32, and lines 36-39).

Tamura teaches the use of computer-readable medium comprising of computer-

executable instructions.

22.   Regarding claim 23, the further limitation of claim 7, see the above rejection of claim 22. Tamura teaches the use of a computer-readable medium.

23.   Regarding claim 24, the further limitation of claim 20, see the above rejections of claims 19 and 22. Tamura teaches these features.

24.   Regarding claim 26, see the above rejections of claims 1, 5, 18, and 19. Tamura teaches all these features.

25.   Regarding claim 27, the further limitation of claim 26, see the above rejection of claim 6. Tamura teaches that software and hardware are analogous.

26.   Regarding claims 28 and 30, the further limitations of claim 26, see the above rejection of claim 7.

27.   Regarding claim 29, the further limitation of claim 26, see the above rejection of claim 3.

28.   Regarding claim 31, the further limitation of claim 26, see the above rejection of claim 5 and 7.

29.   Regarding claim 33, the further limitation of claim 26, see the above rejection of claim 11.

30.   Regarding claim 34, the further limitation of claim 26, see the above rejection of claim 12.

31.   Regarding claim 35, the further limitation of claim 26, see the above rejections of claims 12 and 22.

32.   Regarding claim 36, the further limitation of claim 26, see the above rejection of claim 14.

33.   Regarding claim 37, the further limitation of claim 26, see the above rejection of

claim 15.

34.   Regarding claim 38, the further limitation of claim 26, see the above rejection of

claim 16.

35.   Regarding claim 39, the further limitation of claim 26, see the above rejection of

claim 17.

36.   Regarding claim 40, the further limitation of claim 26, see the above rejections of

claims 1, 2, 18, and 26. Tamura teaches these features, and states that software and

hardware, which perform the same function, are analogous.

37.   Regarding claim 41, the further limitation of claim 26, see the above rejection of

claims 1, 18, and 26. Tamura teaches the DSP chip, which is interchangeable with

software, and it is known in the art of signal processing that a DSP chip has callable

functions, such as multiplication, division, addition, subtraction, and delay. These

callable functions are used in synthesizing the audio from the audio instructions.

38.   Regarding claim 42, the further limitation of claim 26, see Tamura,

*... wherein the one or more audio wave data consumers are audio buffers provided as component
objects, each audio buffer having an interface that is callable by a software component.* (Col. 6, lines
19-24).

Tamura teaches the use of output buffers, which is callable by the connected

peripherals through the CPU bus (Fig. 1).

39.   Regarding claim 43, the further limitation of claim 26, see the above rejection of

claim 31 and Tamura,

*... wherein each audio rendition manager is a component object, and wherein the one or more audio
wave data consumers are audio buffers provided as component objects, each audio buffer having an*

interface that is callable by the audio rendition manager providing the audio buffer. (Col. 7, lines 22-26).

Tamura teaches an audio buffer that is callable by the audio rendition manager.

40.   Regarding claim 44, the further limitation of claim 26, see the above rejection of claim 20.

41.   Regarding claim 46, the further limitation of claim 26, see the above rejection of claim 22.

42.   Regarding claim 47, the further limitation of claim 31, see the above rejections of claims 7 and 22.

43.   Regarding claim 49, see the rejections of claim 26. Tamura teaches an audio generation system.

44.   Regarding claim 52, the further limitation of claim 49, see the above rejection of claim 27.

45.   Regarding claims 53 and 54, the further limitations of claim 49, see the above rejection of claim 28.   Tamura teaches that the performance manager can be software.

46.   Regarding claim 55, the further limitation of claim 49, see the above rejection of claim 30.

47.   Regarding claims 56 and 57, the further limitation of claim 49, see the above rejection of claim 26.

48.   Regarding claim 58, the further limitation of claim 49, see the above rejection of claim 44.

Claim Rejections - 35 USC § 103

49.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

50.   Claims 10 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Tamura as applied to claims 1 and 26, respectively, above, and further in view of

Brooks et al. (Brooks), U.S. Patent 5,842,014.

51.   Regarding claim 10, the further limitation of claim 1, see Brooks

... wherein the audio content includes digital audio samples. (Col. 4, lines 22-25).

Brooks teaches a method of distributing processing among several processors. Brooks

teaches the use of processing digital audio. Brooks does not teach a system with the

features of claim 1. Tamura teaches a tone generation system, which processes music

event data and provides a synthesizer to synthesize the audio wave output. Tamura

does not teach an input consisting of digital audio samples. It would have been obvious

to one of ordinary skill in the art to combine the teachings of Brooks with the teachings

of Tamura for the purpose of providing an audio wave output according to event

information.

52.   Regarding claim 32, the further limitation of claim 26, see the above rejection of

claim 10.

53.   Claims 21, 25, 45, 48, 50, 51, 59-69 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Tamura as applied to claim 1 above, and further in view of

Brooks and Su et al. (Su), U.S. Patent 5,852,251.

54.   Regarding claim 21, the further limitation of claim 1, see Brooks,

... wherein said providing an audio rendition manager comprises:
providing a synthesizer component having multiple channel groups, each channel group having a plurality
of synthesizer channels to receive the audio instructions; (Col. 4, lines 47-49).
providing a mapping component having mapping channels corresponding to the plurality of synthesizer
channels; (Col. 7, lines 23-26).
providing audio wave data consumers; defining logical buses that each correspond to one of the audio
wave data consumers;
the method further comprising:
assigning the mapping channels to receive the audio instructions;
routing the audio instructions to a particular synthesizer channel in accordance with the mapping channel
assignments; (Col. 6, lines 5-9).
processing the audio instructions with the synthesizer component to generate multiple streams of audio
wave data; (Col. 7, lines 19-22).
assigning each of the multiple streams of audio wave data to one or more of the logical buses; and
routing audio wave data streams assigned to a particular logical bus to the audio wave data consumer
corresponding to said particular logical bus.

Brooks teaches a method of distributing processes among several DSP chips. Brooks

does not teach a system, which processes event information, however Brooks does

teach the use of this system with digital audio data. Brooks also does not teach channel

grouping as claimed above. Tamura teaches a tone generation system, which

processes music event data and provides a synthesizer to synthesize the audio wave

output. Tamura teaches that software synthesizers can be used in place of hardware

synthesizers. He does not specifically teach that two software synthesizers can be

used concurrently, however one skilled in the art can envision similar software modules

concurrently running on any multi-tasking operating system. Tamura, also, does not

teach channel grouping. Su teaches a method of real-time midi control. Su does not

teach the method of managing and routing signals as claimed above, however Su

teaches that MIDI channels can be grouped in several groups to save processing time

of event information that is shared across channels. It would have been obvious to one

of ordinary skill in the art to combine the teachings of Tamura, Brooks, and Su for the

purpose of better management of processing resources.

55.   Regarding claims 25 and 48, the further limitations of claim 21, see the above

rejection of claim 22.

56.   Regarding claim 45, the further limitation of claim 26, see the above rejection of

claim 21.

57.   Regarding claims 50 and 51, the further limitations of claim 49, see the above

rejection of 21. Brooks teaches the use of a plurality of audio rendition managers, and

teaches that they are used concurrently (Col. 4, lines 19-21).

58.   Regarding claim 59, the further limitation of claim 49, see the above rejections of

claims 21 and 58.

59.   Regarding claim 60, the further limitation of claim 49, see the above rejections of

claims 21, 22, and 58.

60.   Regarding claim 61, see the above rejections of claims 21 and see Tamura,

An audio rendition manager, comprising:
a synthesizer component having one or more channel groups, each channel group having a plurality of
synthesizer channels configured to receive audio instructions and produce one or more streams of audio
wave data from the received audio instructions; and
a plurality of audio buffers that receive one or more of the streams of audio wave data. (Col. 3, lines
45-47).

Tamura teaches the use of an audio buffer for each channel.

61.   Regarding claim 62, the further limitation of claim 61, see the above rejections of

claims 21, and Tamura teaches that a synthesizer that has a plurality of channels (Col.

4, lines 46-47).

62.   Regarding claim 63, the further limitation of claim 61, see the above rejection of claim 21. Tamura teaches the mapping of channels.

63.   Regarding claim 64, the further limitation of claim 61, see the above rejections of claim 62 and 63. It would have been obvious to extend the assignment of channels, as taught by Tamura, for an extra synthesizer, which is taught by Brooks.

64.   Regarding claim 65, the further limitation of claim 61, see the above rejection of claim 64.

65.   Regarding claim 66, the further limitation of claim 61, see the above rejection of claim 61. Tamura teaches the plurality of buffers, and controls the assignment of these buffers to a plurality of channels. Brooks teaches the method of time division multiplexing (TDM) for creating up to 256 logical buses (Col. 6, lines 5-9).

66.   Regarding claim 67, the further limitation of claim 61, see the above rejection of claims 65 and 66. The combination of Tamura, Brooks, and Su teaches these features.

67.   Regarding claim 68, the further limitation of claim 61, see the above rejections of claims 8 and 61. The combination teaches these features.

68.   Regarding claim 69, the further limitation of claim 61, see the above rejections of claims 65 and 68. The combination teaches these features.

Conclusion

69.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miyake, U.S. Patent 5,303,218, Studor et al., U.S. Patent 6,152,856, Kuper, U.S. Patent 6,357,039, and Abrams et al., U.S. Patent 6,658,309.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 703-605-4300. The examiner can normally be reached on Monday to Friday between 9am and 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER

DRS